

User Guide to Standard Plans

Section RS – ROADSIDE SIGNS

Standard Plan Numbers	RS2, RS3, RS4
Implementation	This user guide applies to the latest versions of Standard Plan Numbers above.
Description of Component	<p>Used for single post and two post supports for the following types of Roadside Sign Panels</p> <ul style="list-style-type: none"> • Single Sheet Aluminum • Framed Single Sheet Aluminum • Laminated Type B, 1" Thick (two post only) • Laminated Type B, 2½" Thick (two post only) • Laminated Type H, 2½" Thick (two post only) <p>Use inside or outside of Special Wind Regions. Use inside or outside of Ice Regions. However, in locations where the designer knows that gravity loads due to freezing rain accumulations have caused damage to engineered structures, the Senior Technical Specialist for signs and overhead structures should be consulted.</p>
Standard Plan Features	<p>RS2: Single and two post installations using 4x4, 4x6, 6x6, and 6x8 wood posts. Includes spacing and embedment of posts, attachment and bracing of sign panels, post caps, and slots for breakaway feature.</p> <p>RS3: Two post installations using Laminated Wood Box Posts Type L and Type M. Includes spacing and embedment of posts, attachment of sign panels.</p> <p>RS4: Additional details for attachment of sign panels, including bracing and frame details. Also includes attachment of sign panels to the pole of an electrolier, signal standard, or the post of a sign structure.</p>

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Project Development Procedures	<ul style="list-style-type: none">• Check for latest applicable version of Standard Plan(s) and SSP from http://www.dot.ca.gov/des/oe/construction-contract-standards.html• Get the applicable version of this User Guide from• https://des.onramp.dot.ca.gov/structure-policy-innovation/des-owned-standard-plan-user-guides• Check for other documents that might apply. Some examples are:<ul style="list-style-type: none">○ Highway Design Manual (HDM)○ California Manual on Traffic Control Devices (CA MUTCD)○ Traffic Manual○ Traffic Operations Policy Directives○ MASH Implementation Memo• Verify that the project conforms to Standard Plans, this User Guide, the specifications, and other requirements and determine which sheets are needed.<ul style="list-style-type: none">○ For questions on interpretation of these Standard Plans or the User Guide, contact the Senior Technical Specialist for Signs and Overhead Structures.○ For questions on the interpretation of the construction specifications contact the head of the Traffic Signs Branch in Traffic Operations.○ For detailed assistance in verification related to the Standard Plans, fill out a special designs work request form. http://des.onramp.dot.ca.gov/office-design-and-technical-services/special-design-branch-b <p>If elements of the project do not conform, then the fill out a special designs form to request a custom design. In some cases special design is only needed for a certain portion, in which case the Standard Plans might still apply for the other portion.</p> <ul style="list-style-type: none">• Laminated wood box posts for construction contracts are typically contractor furnished.
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Design/General Notes	<p>Structural Design Notes:</p> <ul style="list-style-type: none">AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 3rd Edition, 1994.Wind<ul style="list-style-type: none">V = 60 mph (fastest mile)40% allowable stress increase for combinations involving windMaterials (Solid-sawn wood posts):<ul style="list-style-type: none">4x4 allowable stress: 900 psi4x6 and larger allowable stress: 960 psiMaterials (Laminated wood box posts): Untreated laminated veneer lumber must comply with the following requirements: <table><tr><th>Quality characteristic</th><th>Test method</th><th>Requirement</th><th>Sample size</th></tr><tr><td>Mean modulus of rupture</td><td>ASTM D198</td><td>8,000 psi, min for at least 80% of samples</td><td>10 pieces, min</td></tr><tr><td>Moving average bending shear strength</td><td>ASTM D198</td><td>9,900 ± 990 psi</td><td>30 - 2.25" wide specimens, min</td></tr><tr><td>Ultimate shear strength of completed box section</td><td>ASTM D198</td><td>700 psi, min</td><td>1 untreated post from each lot of 100 or fewer posts</td></tr></table> <ul style="list-style-type: none">Exceptions:<ul style="list-style-type: none">Ice Load NOT included, analysis indicated ice load combination not likely to control overall structure design.	Quality characteristic	Test method	Requirement	Sample size	Mean modulus of rupture	ASTM D198	8,000 psi, min for at least 80% of samples	10 pieces, min	Moving average bending shear strength	ASTM D198	9,900 ± 990 psi	30 - 2.25" wide specimens, min	Ultimate shear strength of completed box section	ASTM D198	700 psi, min	1 untreated post from each lot of 100 or fewer posts
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Additional Drawings Needed to Complete PS&E	<p>Project plans showing</p> <ul style="list-style-type: none">Sign structure locationPost spacing (two post)Sign panel typeSign panel sizes and locations on structurePost typeNon-standard vertical clearance requirements																
Contract Specifications	<ul style="list-style-type: none">Standard Specifications.Standard Special Provision (SSP) from http://www.dot.ca.gov/des/oe/construction-contract-standards.htmlNSSP 82-3 (available from the Office of Traffic Engineering, in the Division of Traffic Operations).																

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Restrictions on Use of Standard Drawings	<p>If project conditions require significant deviations from these standards, the design might require a special design. Some examples might be:</p> <ul style="list-style-type: none">• Additional loads not shown• Other sign panel types such as Extinguishable Message Sign (EMS)• Additional holes• Deviations from dimensions• Weak soils• Locations where finish grade at base of standards is more than 33' above surrounding terrain
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